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EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/638,169	DUFFY ET AL.	
	Examiner	Art Unit	
	Ian N. Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claim rejection 35 USC § 112 second paragraph, on claims 23-30 are withdrawn since they are being amended accordingly.

2. Claims 23-30 are rejected by the same ground of rejections.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 23-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buskens (U.S. 5,905,871) and Majd (U.S. 6,587,974), in view of Olkin (U.S. 6,310,892).

Regarding claim 23, Buskens discloses a system performing the method comprising:

a source nodes (see FIG. 1, Sender S (or) a root node; col. 3, line 16) to transmit a data packet to a target node (see FIG. 1, Receiver R (or) a leaf node; col. 3, line 18);

a plurality of intermediate nodes (see FIG. 1, Routers RT with designated receiver functionality DR); communicatively coupled in succession between the

source node and the target node (see col. 3, lines 14-18; note that each router RT couples in series/succession between root node S and receiver R),

each of the intermediate nodes receive the data packet from either the source node (see FIG. 1, Sender S) or a previous intermediate node in succession (see FIG. 1, RT), and transmit the data packet to either the next intermediate node in succession (see FIG. 1, RT) or to the target node (see FIG. 1, R); see col. 3, lines 1-18,

each of the intermediate nodes and the source node having a programmable retry timer (see Fig. 2, Reliable Multicast Transport Protocol, RMTP, T_retx timer) associated therewith (see col. 4, lines 22-54; note that sender, receiver and router/DR utilizes RMTP retransmission timer; see col. 4, lines 54-67; see col. 8, lines 19-20; see col. 3, lines 1-12);

each retry time programmed with a retry time period (see FIG. 2, RMTP retx timer with a time interval/cycle/period; col. 11, line 40-57; note that various timers are used in the sender and DR with time interval/period) after which the intermediate node or the source-node will retransmit a data packet if the intermediate node or the source node has not received an appropriate response to said data packet (see Fig. 3A, Sender scheduler implemented in source node and RT/DR nodes, T_retx expires at step 303; col. 4, line 28-39; col. 6, line 46 to col. 7, line 14, and col. 5, line 43-67;; note that retransmission from Sender/RT/DR occurs upon receiving a status acknowledgement packet(s) and/or expiration of retransmitting timer from receivers and/or designated receivers);

the source node and the intermediate node to employ a transaction control scheme (see FIG. 2, RMTP protocol; see col. 4, lines 23-26; note the sender and RT/DR utilizes RMTP protocol);

wherein the retry timer of the source node is programmed with a retry time-period, and wherein the retry timer of the intermediate node is programmed with a retry time-period (see FIG. 2; col. 11, line 40-57; note that various timers are used in the sender and DR with different time interval/period), and

intermediate node (see FIG. 1, RT/DR 104) located relatively further in succession from the source node (see FIG. 1, Node S, note that RT/DR 104 further away in series from Sender node S), and the intermediate node (see FIG. 1, RT/DR 105) located relatively closer in succession to the source node (see FIG. 1, Node S, note that RT/DR 105 is nearer/closer in series from Sender node S); see col. 3, lines 1-65.

Buskens '871 does not explicitly disclose wherein the source node has a relatively larger time period than any of the intermediate nodes.

However, this limitation is Majd. Majd teaches that wherein the source node has a relatively larger retry time period than any of the intermediate nodes (see col. 1, lines 35-50; the greater the length of the transmission/retransmission path, the longer time it will take a signal to propagate/retransmit/retransmit). Thus, the longer the distance, the longer the time is required to retransmit. In particular, it is obvious that retransmission distance from the sender S to the receivers R is longer than the distance from the intermediate nodes RT/DR to the receivers, upon receiving

negative acknowledgement and/or after time-out (see Buskens FIG. 1). Since the intermediate nodes (i.e. RT/DRs) are located between the receiver and the sender, the time to reach from the sender to the receiver is longer than the time to reach from the intermediate node to the receiver. Thus, it is obvious that source node retry time period (i.e. time interval between Sender and Receiver) is longer than any of the intermediate retry time period (i.e. time interval between any intermediate node and Receiver).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens '871 as taught Majd for the purpose of overcoming acknowledgement imposing problem by having one retransmission time interval is longer than the other base upon the distance. The motivation being that by utilizing separate timer for intermediate node, which is capable of sending and receiving on behalf of the sender, it can reduce end-to-end delay and improve latency; see Buskens col. 3, lines 44 to col. 4, lines 54.

Buskens '871 does not explicitly disclose wherein intermediate node located relatively further from the source node has a relatively smaller time periods than intermediate nodes located relatively closer to the source node.

However, these limitations are taught by Olkin and Majd. In particular, Elkins and Majd disclose wherein intermediate node located relatively further from the source node has a relatively smaller retry time periods than intermediate nodes located relatively closer to the source node (see Elkins col. 7, lines 6-12). Elkins teaches that retransmission timer/time can be adjusted (i.e. smaller or larger) based

on round trip time in order to adapt the existing network conditions. In addition, Majd teaches that the longer the distance, the longer the time is required to transmit/propagate/retransmit. Thus, the intermediate node 104 which located far away from the source node has a retry time period (i.e. time interval between node 104 and receiver) can be adjusted relatively smaller than intermediate node 105 located relatively closer to the source node (i.e. time interval between node 105 and receiver), per Elkins and Majd.

However, this limitation is taught by Elkins. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Buskens and Majd, as taught by Elkins for the purpose of adjusting to be smaller or larger retransmission time/timer of the node based upon the distance, since Elkins states in col. 7, line 10-11 that such modification would avoid retransmission based on a particular link that is slower than the others. The motivation being that by utilizing separate timer for each intermediate node, it can further reduce end-to-end delay and improve latency.

Regarding claim 24, Buskens discloses wherein the retry time periods of each of the retry timers of said intermediate nodes are set by the data packet transmitted from the source node (see col. 11, line 58 to col. 12, line 10; note that the retransmit timers/time interval/period (T_retx) are set base upon T_send timer, which is triggered by the sender during packet transmission towards each intermediate node. Also, it is well known in art of packet transmission that both sender and intermediate nodes must keep track of the packet's departure and arrival

within a predetermined sliding window size (i.e. timer or duration) during transmission in order to retransmit missing or lost packets and provide reliable service. Therefore, it is clear that a packet transmitted from a sender must set the retransmission timer at each intermediate node. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens as taught by Elkins and Majd in art for the same reason stated in Claim 23 above.

Regarding claim 25, the combined system of Buskens, Majd, and Olkin teaches that the retransmit time of the sender/source node is longer than any of the intermediate nodes, and the intermediates node that is further away from source node have smaller retransmit time than the intermediate node closer to the source node, as described in claim 23 above.

Buskens discloses wherein the source node is configured to attempt to retransmit the data packet relatively more times than any of the intermediate nodes (see Buskens '871 col. 7, line 1-26; note that a sender retransmits missing/lost packet per request from the both receivers and intermediate RT/DRs. Per Fig. 3A, the retransmission occurs a number of times until the request from both receiver and RT/DRs receive all requested packets. Thus, it is clear that the number of retransmit time from the sender/source node must be more (i.e. FIG. 1, 4 times for four RT/DRs and 4 times for four receivers, thus total 8 times) than intermediates RT/DR 104 (i.e. FIG. 1, 4 times for four receivers)); and

wherein intermediate nodes located relatively further in succession from the source node are configured to attempt to retransmit the data packet relatively fewer times than intermediate nodes located relatively closer in succession to the source node (see Buskens '871 col. 7, line 1-26 and see Fig. 3A; note that each intermediate RT/DR retransmits missing/lost packet per request from the receiver. Also, intermediate RT/DR nodes are in series between the source/sender and the plurality of receivers. Thus, it is clear the number of retransmission time from RT/DR node 104 (i.e. FIG. 1, 4 times for four receivers), which is further away in series from the source/sender, occurs lesser than RT/DR node 105 (i.e. FIG. 1, 1 time for a RT/DR 104 and 4 times for four receives, thus total 5 times), which is closer in series to the sender.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens and as taught by Olkin and Majd teaching in art for the same reason stated in Claim 23 above.

Regarding Claim 27, a method claim which that substantially discloses all the limitations of the respective system claim 23. Therefore, it is subjected to the same rejection.

Regarding Claim 28, a method claim which that substantially discloses all the limitations of the respective system claim 24. Therefore, it is subjected to the same rejection.

Regarding Claim 29, a method claim which that substantially discloses all the limitations of the respective system claim 25. Therefore, it is subjected to the same rejection.

5. Claims 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buskens, Majd, Olkin as applied to claim 23 and 27 above, and further in view of Pierson (U.S. 6,621,833)

Regarding claim 26, the combined system of Buskens, Olkin, and Majd discloses intermediate nodes receiving data packet as described above in claim 23.

Neither Buskens, Olkin, nor Olkin explicitly discloses repeater nodes configured to amplify signal strength (see Pierson'833 col. 4, line 24-26; note that repeaters nodes are used to re-amplify the signal strength in order to prevent signal attenuation (i.e. loss of signal strength)).

However, this limitation is taught by Pierson'833. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Buskens, Olkin, and Majd, as taught by Pierson'833 for the purpose of providing the intermediate nodes with the repeaters functionality which amplify/re-amplify the signal strength, since Pierson'833 states in col. 25-26 that such modification would prevent loss of signal strength as a signal travels down a link. The motivation being that by amplifying/re-amplifying the signal, it can reduce the signal distortion and prevent loss of signal strength.

Regarding Claim 30, a method claim which that substantially discloses all the limitations of the respective system claim 26. Therefore, it is subjected to the same rejection.

Response to Arguments

6. Applicant's arguments filed 3/3/2005 have been fully considered but they are not persuasive.

Regarding claims 23-30, the applicant argued that, "...the combination of Buskens, Majd, and Elkins does not teach a system with a plurality of intermediate nodes which have retry timers based on positioned relative to a source node...Majd does not disclose the use of retry timers..." in page 8, paragraph 3 and page 9, paragraph 1.

In response to applicant's argument, the examiner respectfully disagrees that the combination of Buskens, Majd, and Elkins does not teach a system with a plurality of intermediate nodes which have retry timers based on positioned relative to a source node.

As recited in previous office action, Buskens discloses the retry timer of the source node is programmed with a retry time-period, and wherein the retry timer of the intermediate node is programmed with a retry time-period (see FIG. 2; col. 11, line 40-57; note that various timers are used in the sender and DR with different time interval/period), and

intermediate node (see FIG. 1, RT/DR 104) located relatively further in succession from the source node (see FIG. 1, Node S, note that RT/DR 104 further away in series from Sender node S), and the intermediate node (see FIG. 1, RT/DR 105) located relatively closer in succession to the source node (see FIG. 1, Node S, note that RT/DR 105 is nearer/closer in series from Sender node S); see col. 3, lines 1-65.

Majd discloses Majd teaches that wherein the source node has a relatively larger retry time period than any of the intermediate nodes (see col. 1, lines 35-50; the greater the length of the transmission/retransmission path, the longer time it will take a signal to propagate/retransmit/retransmit). Thus, the longer the distance, the longer the time is required to retransmit. In particular, it is obvious that retransmission distance from the sender S to the receivers R is longer than the distance from the intermediate nodes RT/DR to the receivers, upon receiving negative acknowledgement and/or after time-out (see Buskens FIG. 1). Since the intermediate nodes (i.e. RT/DRs) are located between the receiver and the sender, the time to reach from the sender to the receiver is longer than the time to reach from the intermediate node to the receiver. Thus, it is obvious that source node retry time period (i.e. time interval between Sender and Receiver) is longer than any of the intermediate retry time period (i.e. time interval between any intermediate node and Receiver).

The combined system of Buskens and Majd clearly teaches that the source node has a relatively larger retry time period than any of the intermediate nodes.

Alternatively, it is obvious to one skilled in the ordinary art that the shorter the distance, the shorter retry time period since Majd clearly teaches the well known common knowledge relation between the "time" and "distance" as recited above.

Olkin teaches that retransmission timer/time can be adjusted (i.e. smaller or larger) based on round trip time in order to adapt the existing network conditions; see col. 7, lines 6-12. Majd teaches that the longer the distance, the longer the time is required to transmit/propagate/retransmit. Thus, the intermediate node 104 which located far away from the source node has a retry time period (i.e. time interval between node 104 and receiver) can be adjusted relatively smaller than intermediate node 105 located relatively closer to the source node (i.e. time interval between node 105 and receiver), per Olkin and Majd.

Thus, it is clear that the combined system of Buskens, Majd, and Olkin teaches a system with a plurality of intermediate nodes which have retry timers based on positioned relative to a source node.

Madj is not required to teach retry timers or even intermediate nodes since the retry timers or intermediate nodes are already disclosed by Buskens. Both Madj and Olkin teach well-known limitation of relationship between "time" and "distance", as recited above and previous office action. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant argued that, "...there is no motivation to combine Majd with Buskens or Olink..." in page 9, paragraph 1.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Buskens discloses that it would overcome acknowledgement imposing problem by having one retransmission time interval is longer than the other base upon the distance, and by utilizing separate timer for intermediate node, which is capable of sending and receiving on behalf of the sender, it can reduce end-to-end delay and improve latency; see Buskens col. 3, lines 44 to col. 4, lines 54. Olkin states in col. 7, line 10-11 that it would avoid retransmission based on a particular link that is slower than the others, and by utilizing separate timer for each intermediate node, it can further reduce end-to-end delay and improve latency.

In view of the above, **the examiner respectfully disagrees** with applicant's argument and believes that the combination of references as set forth in the 103 rejections is proper, thus, Claims 23-30 are obvious over Buskens in view of Majd and further in view of Olkin for at least the reasons discussed above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on M-F: 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM

5/26/05

BOB PHUNKULH
PRIMARY EXAMINER